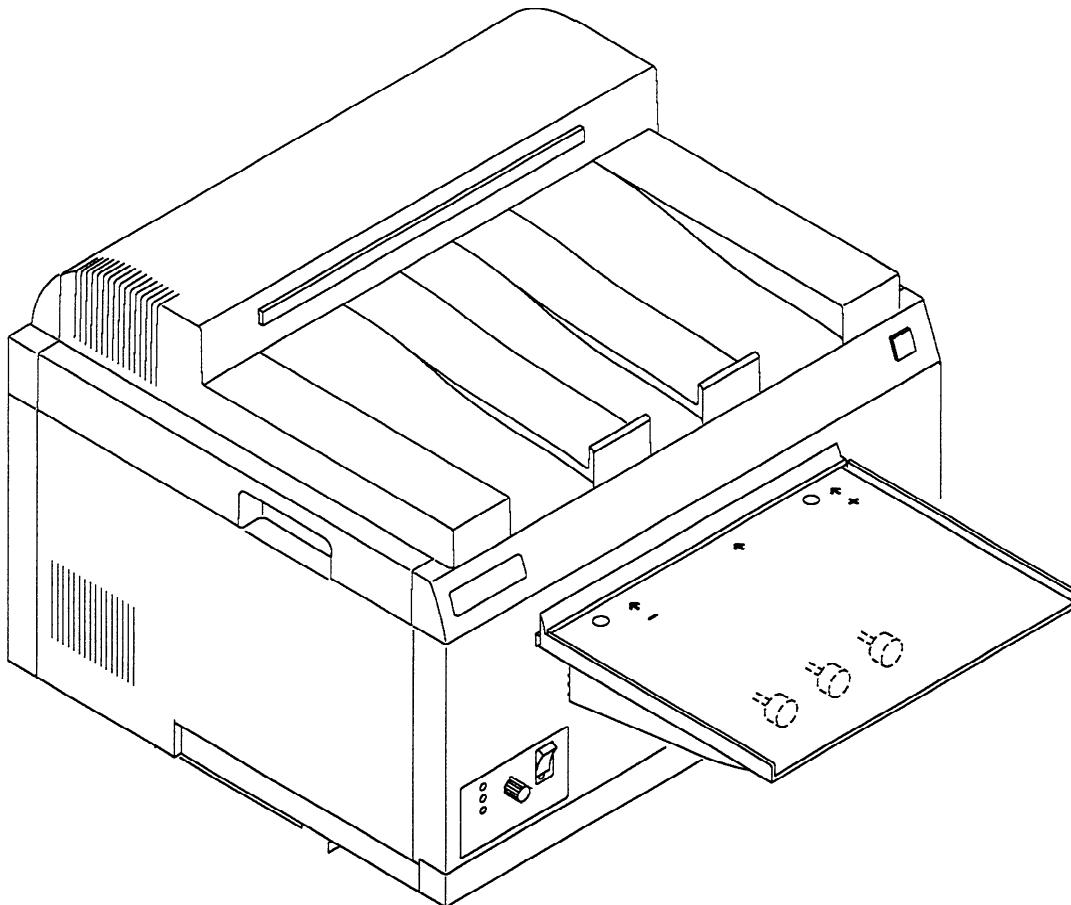




Publication No. 981087-Final  
August 1994

**SITE SPECIFICATIONS**  
for the  
**Kodak X-Omat M43 and M43A Processors**  
**and the Kodak X-Omat Clinic 1 Processor**



H130\_0009DA

**PLEASE NOTE**

The information contained herein is based on the experience and knowledge relating to the subject matter gained by Eastman Kodak Company prior to publication.

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**WARNING**

To avoid hazardous conditions, keep floors and floor coverings around your *Kodak X-Omat* Processors and associated drains clean and dry at all times. Any accumulation of fluids from mixing tanks, drain lines, etc., should be cleaned up immediately. In the event of an accumulation of liquid due to backup, overflow, or other malfunctions of the drain associated with your *Kodak X-Omat* Processor, call a plumber or other contractor to correct any problem with the drain. Kodak accepts no responsibility or liability whatsoever for the serviceability of any drain connected to or associated with a *Kodak X-Omat* Processor. Such drains are the sole responsibility of the customer.

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## Dimensions and Weights

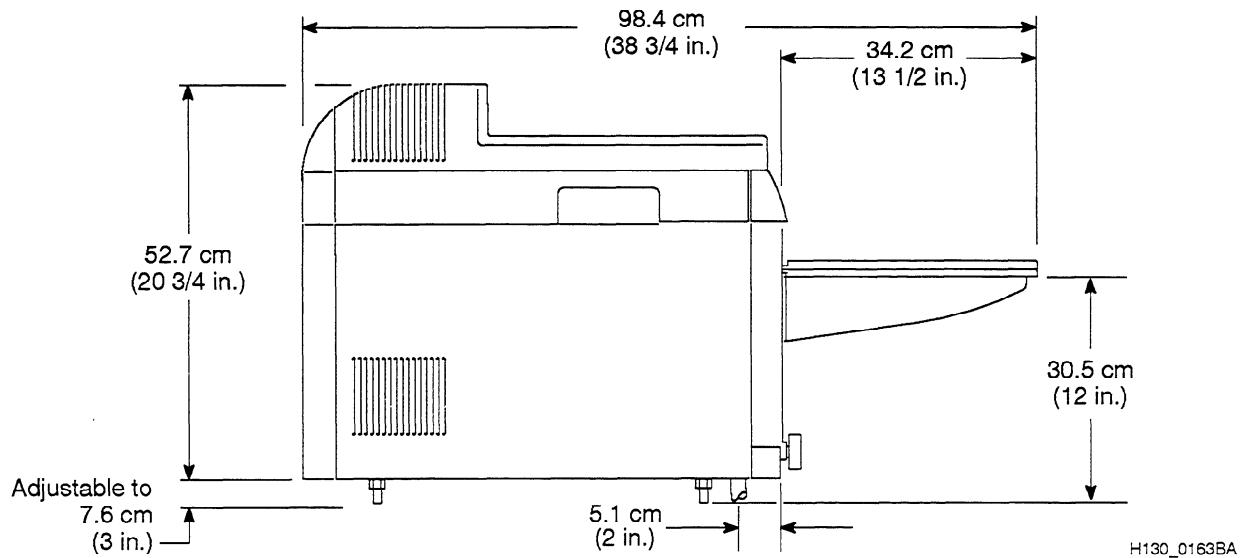


Figure 1 Side-View Dimensions

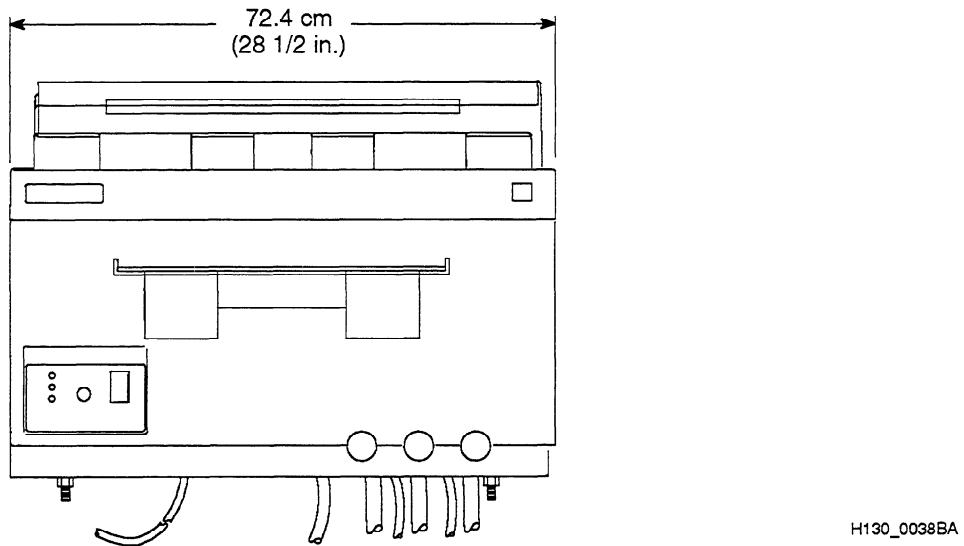
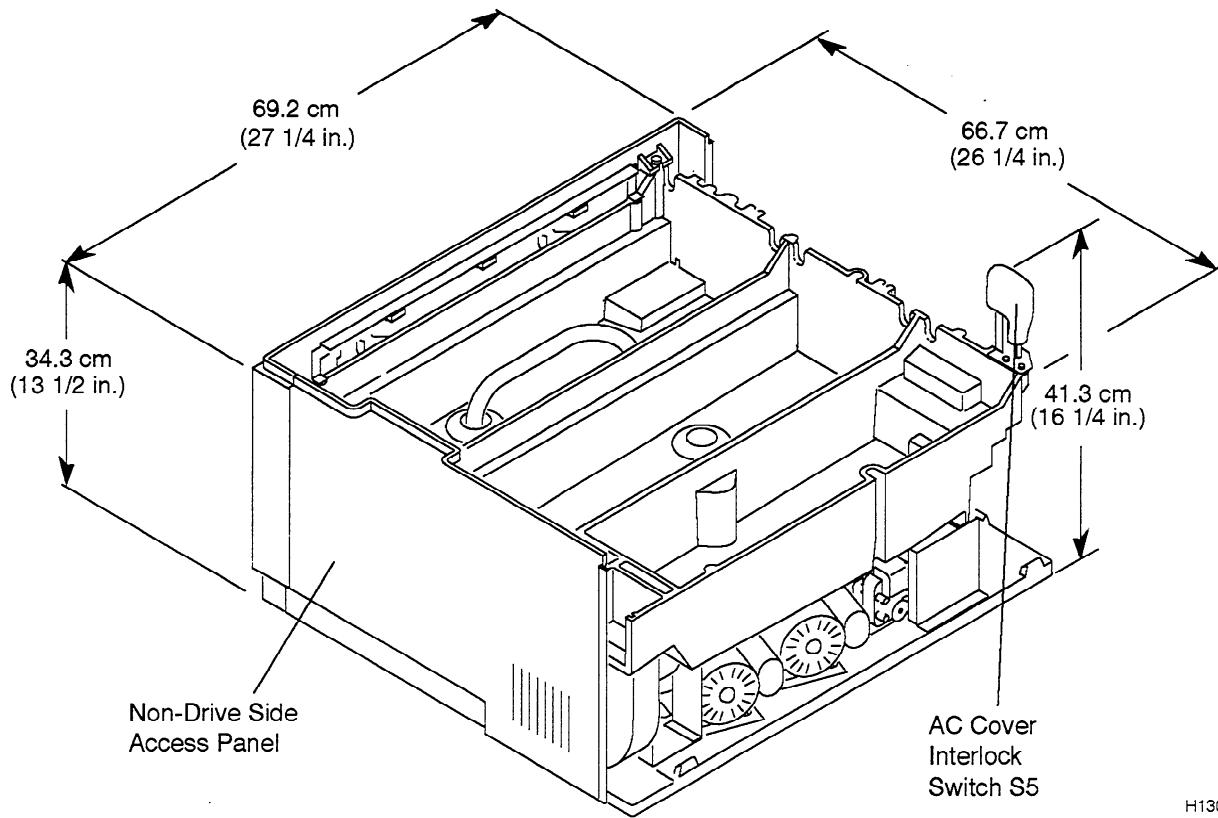


Figure 2 Front-View Dimensions

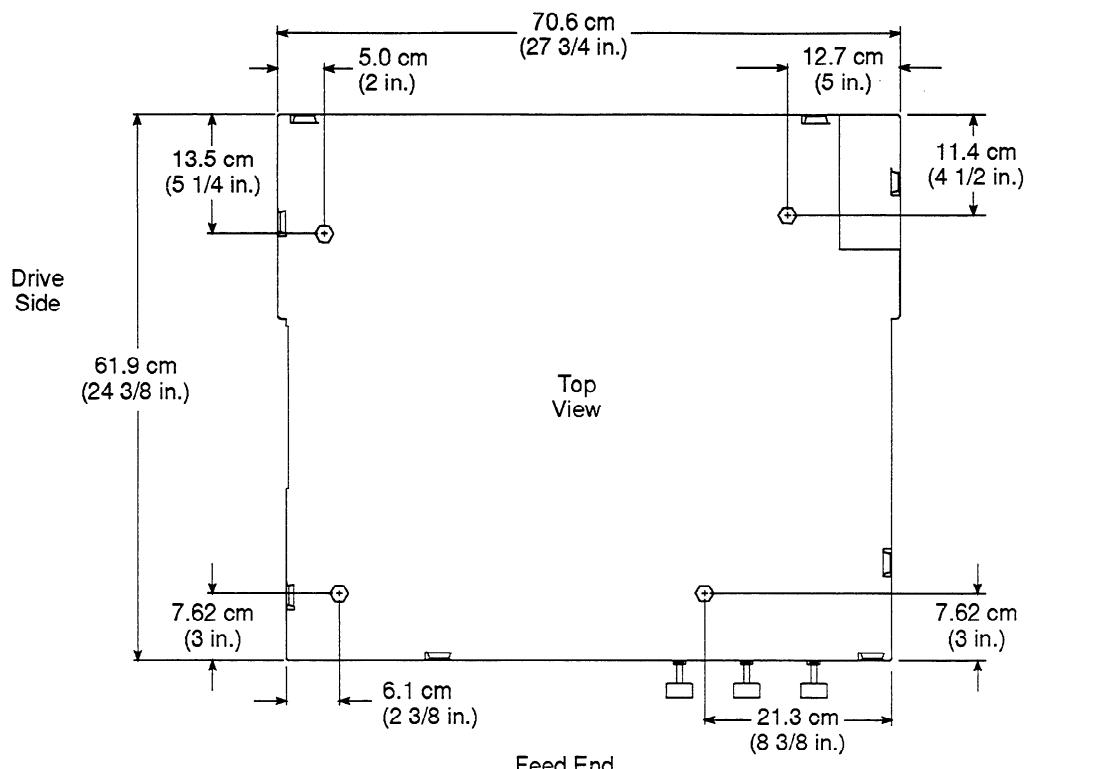


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**Figure 3 Dimensions With Top Cover, Drive-Side Panel, Back Panel, and Feed Tray Removed (for Carrying the Processor Through a Narrow Doorway)**

**Table 1 Dimensions and Weight of the Processor**

Description	Crated	Uncrated
Length	90.8 cm (35 3/4 in.)	64.2 cm (25 1/4 in.) Without feed tray 98.4 cm (38 3/4 in.) With feed tray
Width	82.5 cm (32 1/2 in.)	72.4 cm (28 1/2 in.)
Height	92.7 cm (36 1/2 in.)	52.7 cm (20 3/4 in.)
Weight (Tanks Empty)	110 kg. (243 lb.)	84 kg. (185 lb.)
Weight (Tanks Full)	Not Applicable	112 kg. (247 lb.)
Minimum Room Door Frame Dimensions for Processor With <b>All Access Panels Installed</b> (Processor in Upright Position)	Not Applicable	71.1 cm (28 in.) Measurement includes Drain Valve Dimension
Minimum Room Door Frame Dimensions for Processor With Racks Removed (see figure) (Processor Turned With Drive-Side Up)	Not Applicable	41.3 cm (16 1/4 in.) 34.3 cm (13 1/2 in.) with Top Cover Interlock Switch Removed



**Figure 4 Top View - Leveling Feet Dimensions**

**Table 2 Maintenance and Operation Access Requirements**

Description	Maintenance Access	Operational Access
Back End of Processor	91.4 cm (36 in.)	7.6 cm (3 in.)
Front or Feed End of Processor	91.4 cm (36 in.)	91.4 cm (36 in.)
Drive Side of Processor	91.4 cm (36 in.)	91.4 cm (36 in.)
Non-Drive Side of Processor	91.4 cm (36 in.)	7.6 cm (3 in.)
Top of Processor	91.4 cm (36 in.)	7.6 cm (3 in.)

#### NOTE

Most components requiring maintenance access are located at the back or drive side of the processor. Allow maximum space to gain access into the back and drive side of the processor. If you are not able to allow 91.4 cm (36 in.) on all sides of the processor, at least allow enough room so that you can turn the processor and gain access to the back and drive sides.

The table or counter dimensions required for the processor are:

<b>Minimum Depth</b>	71.1 cm (28 in.)
<b>Minimum Width</b>	78.7 cm (31 in.)
<b>Recommended Height</b>	50.8 - 58.4 cm (20.0 - 23.0 in.)

## Optional Accessories and Kits

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### Descriptions

**Stand:** An optional stand is available from Kodak. The processor stand provides a sturdy work surface for the processor and occupies a minimum amount of space. By using the optional *Kodak M35, M43, Clinic 1 Mounting Stand*, you are ensured that the processor will be at a convenient height for feeding films. The Mounting Stand also provides the convenience of a slide-out shelf in the base on which you may store replenishment supply tanks. Order **CAT. No. 808 1176**.

**LIGHTLIGHT FEED TRAY:** An optional Lightlight Feed Tray Kit is available from Kodak. The Lightlight Feed Tray allows you to turn on the darkroom lights immediately upon feeding the last sheet of film. Order **CAT. No. 188 0335**.

**Transformer Kit:** If your site does not meet the voltage specifications as outlined in the Site Specifications, publication number 981087, a qualified service person can install a Transformer Kit to ensure that your voltage will be within the correct specifications at all times. For Clinic 1 and M43A sites whose voltage is not within the range of 104 to 127 V AC at all times, order **CAT. No. 167 4340**. For M43 sites whose voltage is not within the range of 207 to 253 V AC at all times, order **CAT. No. 171 0292**. Be sure when having a Transformer Kit installed, that it is installed according to local codes.

**Seismic Anchor Bracket Kit:** If the processor is to be installed in California or in any area where the threat of earthquakes or tremors exists, you can order the Seismic Anchor Bracket Kit. Use the hardware supplied with the Mounting Stand to securely attach the processor to the Stand. The Seismic Anchor Bracket Kit includes the hardware to enable a qualified service person to secure the Mounting Stand to the floor. Order **Part No. 261413**. Be sure when having a Seismic Anchor Bracket Kit installed, that it is installed according to local codes.

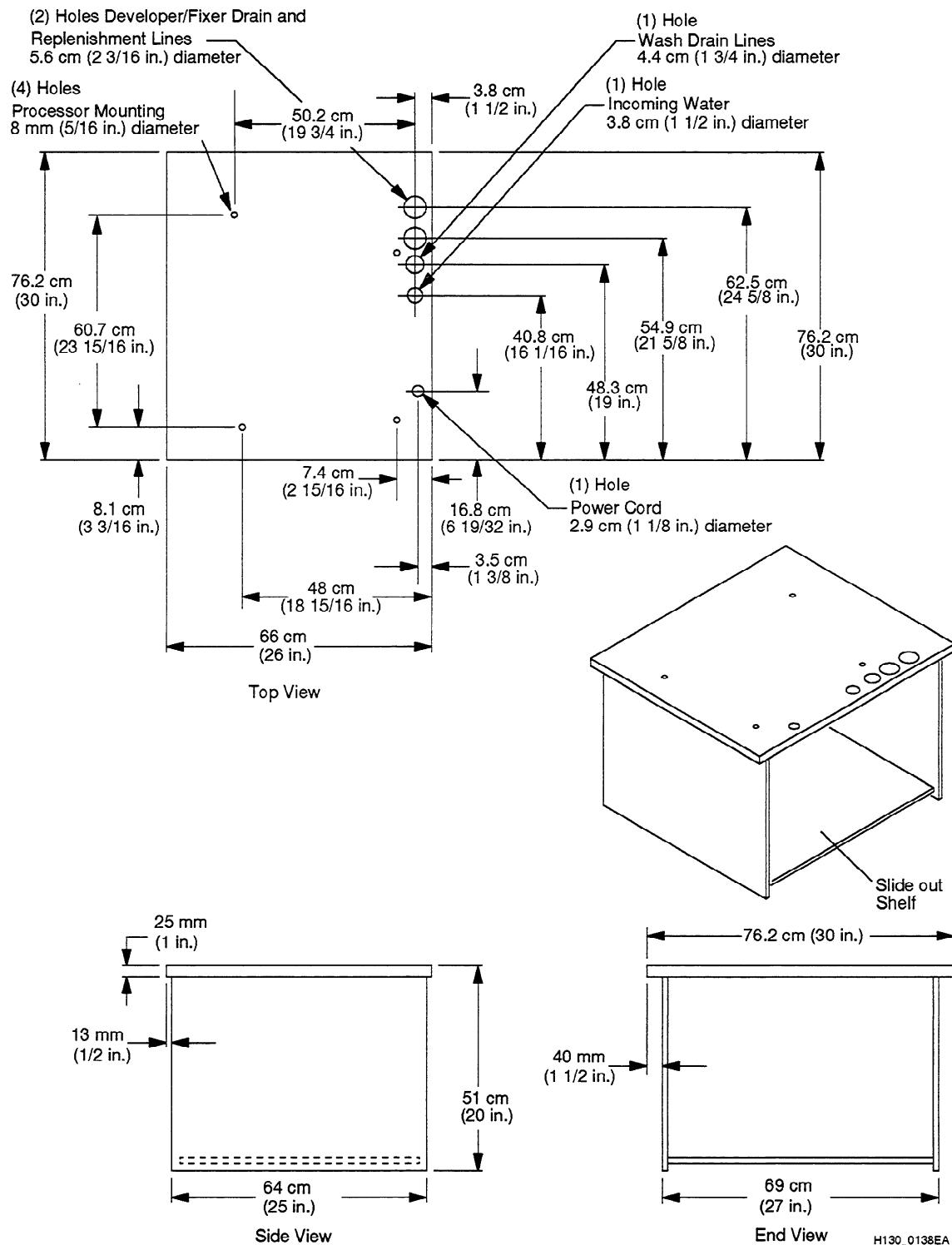
**Vent Duct Adapter Kit:** If you need venting capability, order a Vent Duct Adapter Kit (detailed below) that connects to the processor. This kit can be used with the Auxiliary Ventilation Fan Kit. Order **CAT. No. 143 4943**.

**Auxiliary Ventilation Fan Kit:** If your site does not meet the specifications for room air changes as outlined in the Site Specifications, publication number 981087, a qualified service person can install the *Kodak Auxiliary Ventilation Fan Kit* with the Vent Duct Adapter Kit (detailed above). Order **Part No. 264503**. Be sure when having a Ventilation Fan Kit installed, that it is installed according to local codes. This kit is available for 115 V AC only and has a capacity of 122 cubic feet per minute.

**Installation Kit:** If your qualified service person is installing the Clinic 1 processor, the Installation Kit provides all of the components necessary to install the processor. These parts are included when purchasing the M43 and M43A processor models. Order **CAT No. 863 2754**.

**Through-the-Wall Kit:** If your qualified service person is installing the processor through the darkroom wall, this kit includes all the components necessary to complete the installation. This kit assumes the use of the *Kodak M35, M43, Clinic 1 Mounting Stand*. Order **CAT No. 871 3109**.

**Processor Mounting Stand** Order CAT. No. 808 1176, for the *Kodak M35, M43, Clinic 1* Mounting Stand.



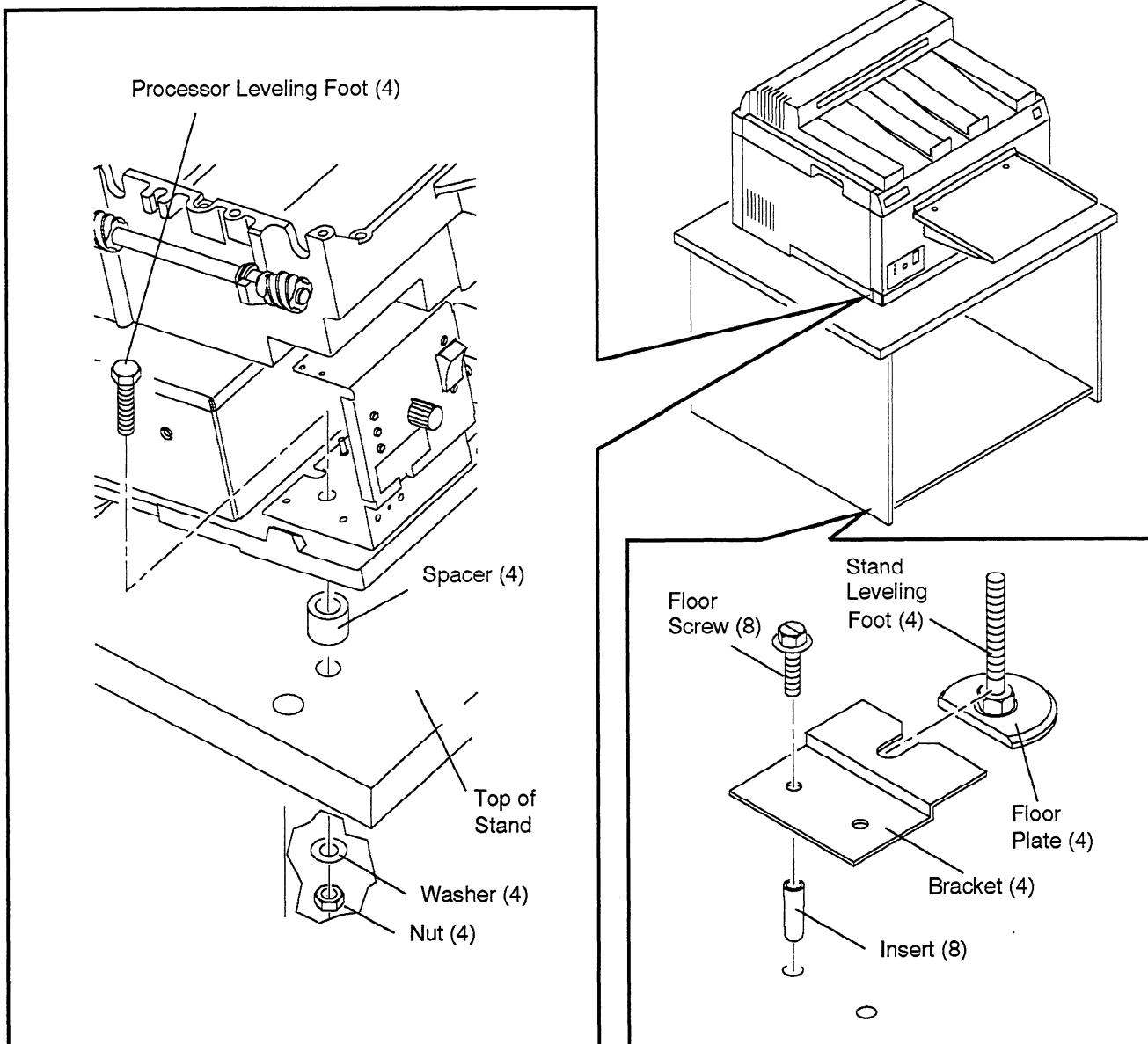
**Figure 5 Using the Optional Mounting Stand**

**Seismic Bracket Kit**

If Seismic Brackets are required by local codes, install the Seismic Brackets to the processor. See the figure. A Seismic Bracket Kit, Part Number 261413, is available and provides you with the Brackets and hardware necessary to anchor all 4 legs of the Mounting Stand.

**IMPORTANT**

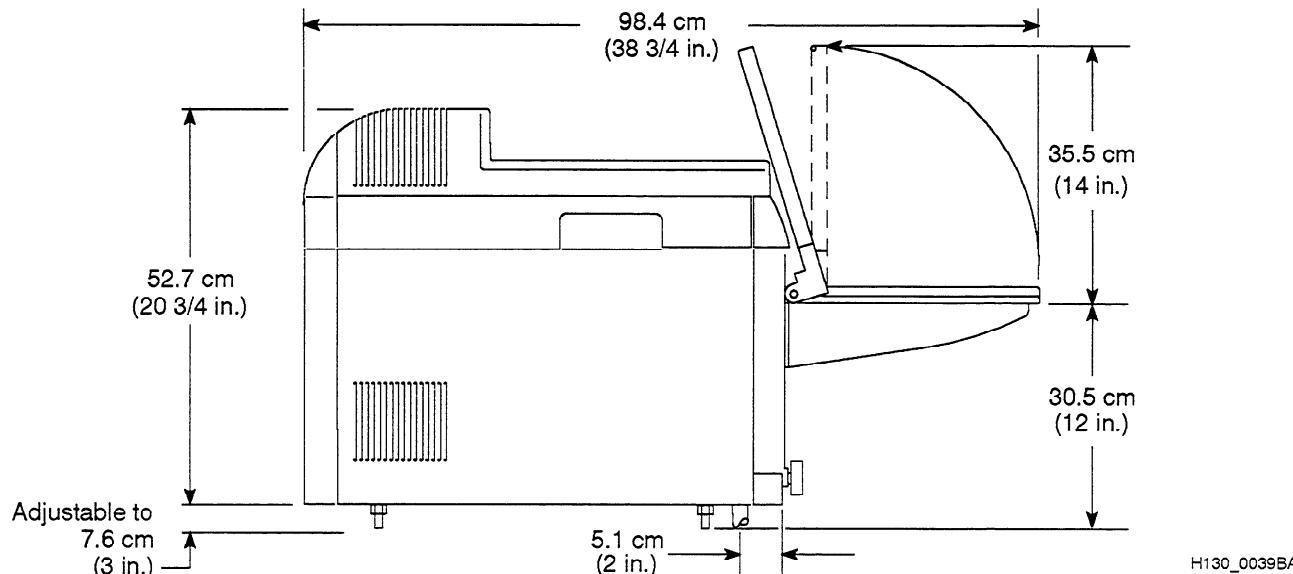
Local building codes may require that Seismic Brackets be used.



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**Figure 6** Installing the Seismic Brackets

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**Lighttight Feed Tray** Order CAT. No. 188 0335

**Figure 7 Dimensions of the Lighttight Feed Tray**

**NOTE**

If installing the processor through the wall with the Lighttight Feed Tray,  
see page 18 for additional specifications.

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**Through-the-Wall Kit** Order Cat No. 871 3109.

The *Kodak X-Omat M43 Through-the-Wall Kit* contains the hardware needed to install the M43, M43A and Clinic 1 Processors through a darkroom wall.

Order Publication No. 1C7052 for the Kit Packing List.

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**Installation Kit for the** Order Cat No. 863 2754**Clinic 1 Processor**

The *Kodak X-Omat Clinic 1 Installation Kit* contains the hardware needed to install the Clinic 1 Processor.

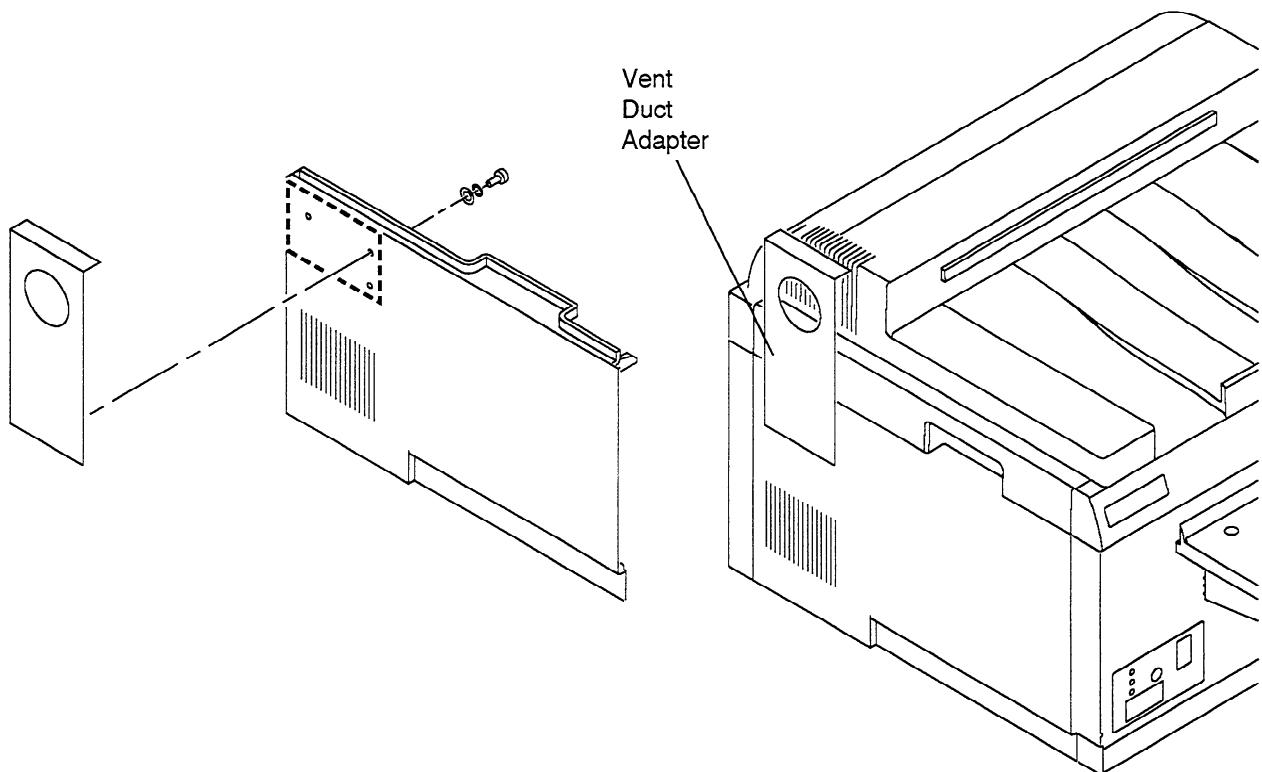
Order Publication No. 1C7052 for the Kit Packing List.

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**Vent Duct Adapter Kit** Order CAT. No. 143 4943

The Vent Duct Adapter connects the processor to the exhaust of the building's ventilation system. If your site's ventilation system does not meet the recommended 10 room air exchanges/hour, you may use the *Kodak* Vent Duct Adapter Kit to connect the processor directly to the building exhaust. If the building exhaust is not strong enough, the *Kodak* Auxiliary Ventilation Fan Kit (115 V AC) Part No. 264503 can be used. If both kits are necessary, they must be installed at the same time.

For sites selecting dedicated exhaust connections, see the figures on pages 10 through 13 for details of the ventilation requirements.



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**Figure 8 Vent Duct Adapter**

## IMPORTANT

Before making the measurements for negative static pressure, check that the processor is deenergized and that the Duct is **not** connected to the processor.

### Building Exhaust Duct:

- (1) Order J Tube P/N 592380.
- (2) Remove the curved portion from the J Tube.
- (3) Connect the Rubber Hose from the Air Meter to the modified J Tube.
- (4) Insert the modified J Tube 30.5 cm (12 in.) into the Exhaust Hose.
- (5) Check that there are no kinks in the Rubber Hose.
- (6) Check that you use the Center Connector on the Air Meter.
- (7) Use the Air Meter TL-2431 to measure negative static pressure in the Exhaust Duct 30.5 cm (12 in.) from the end that is to be connected to the processor. See the figures below.

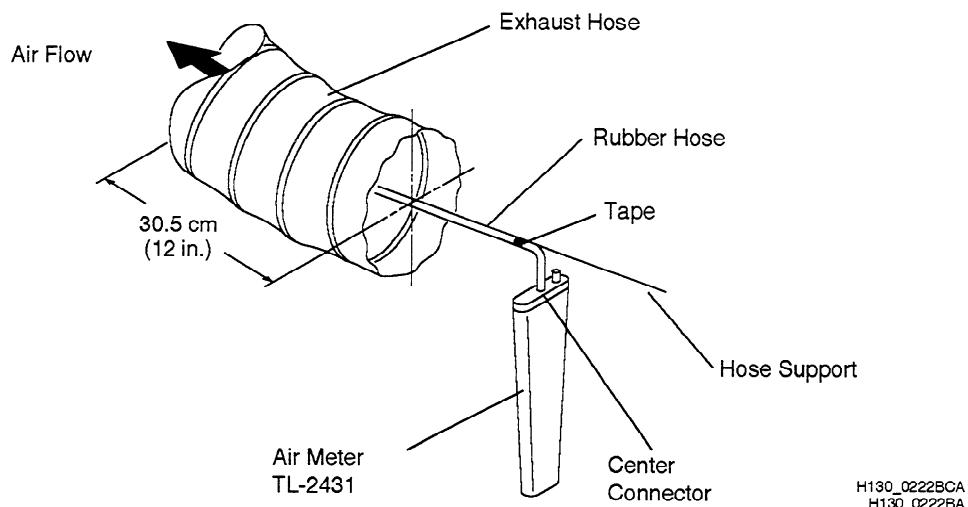


Figure 9 Identifying Parts on the Air Meter

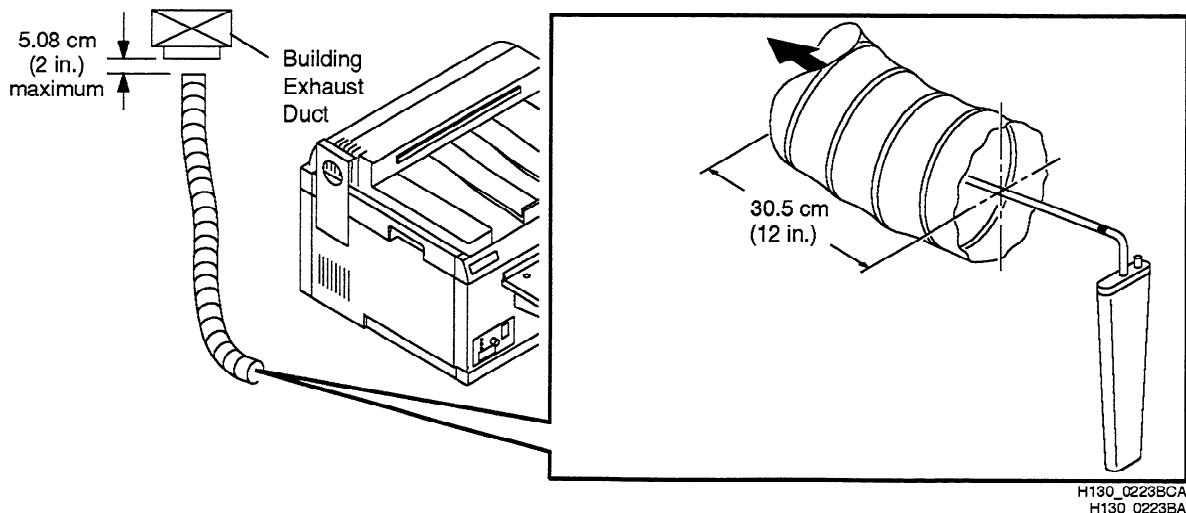
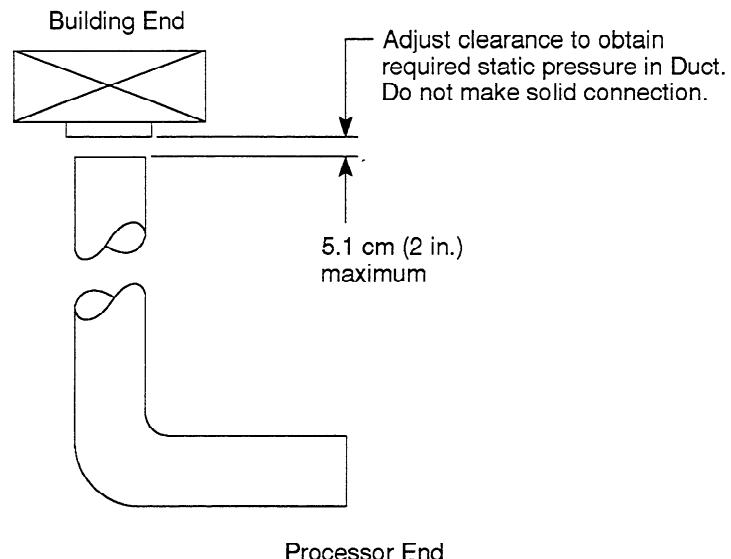


Figure 10 Measuring the Static Pressure

- Adjust the clearance between the building Exhaust Duct and the Duct from the processor as shown in Figure 11 to obtain the required static pressure outlined in Table 3.

**Table 3 Required Static Pressures**

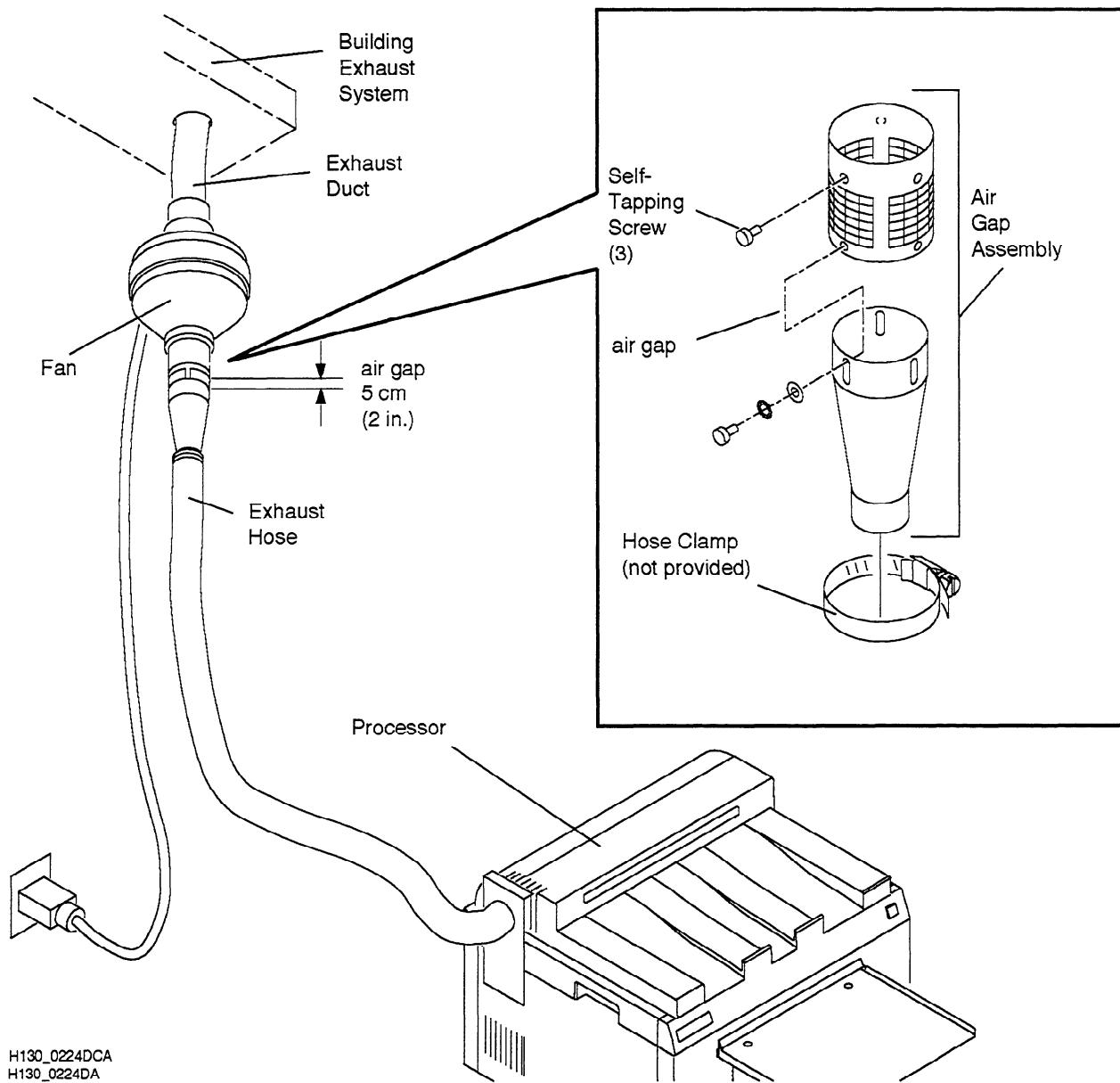
Duct Diameter	Negative Static Pressure, (Water Head)	
	MIN	MAX
7.6 cm (3 in.)	0.76 mm (0.03 in.)	1.02 mm (0.04 in.)
10.2 cm (4 in.)	0.25 mm (0.01 in.)	0.51 mm (0.02 in.)



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**Figure 11 Adjusting the Exhaust Ducts for Correct Static Pressure**

If your site conditions require you to have an optional Auxiliary Ventilation Fan Kit installed, order Part Number 264503. For more details regarding the Auxiliary Ventilation Fan Kit which includes an Air Gap Assembly, see page 6. To adjust the Air Gap Assembly for use with the Auxiliary Ventilation Fan Kit, see the figure below. If you wish to order an Air Gap Assembly separately, order Part Number 264519.



**Figure 12 Adjusting the Air Gap for Use with the Optional Auxiliary Ventilation Fan Kit**

## Transformer Kits

If necessary in order to obtain the correct voltage specifications, you may need to install a Transformer Kit. The Transformer Kit will expand the operational voltage ranges as follows:

115 V AC Transformer Kit, order CAT No. 167 4340

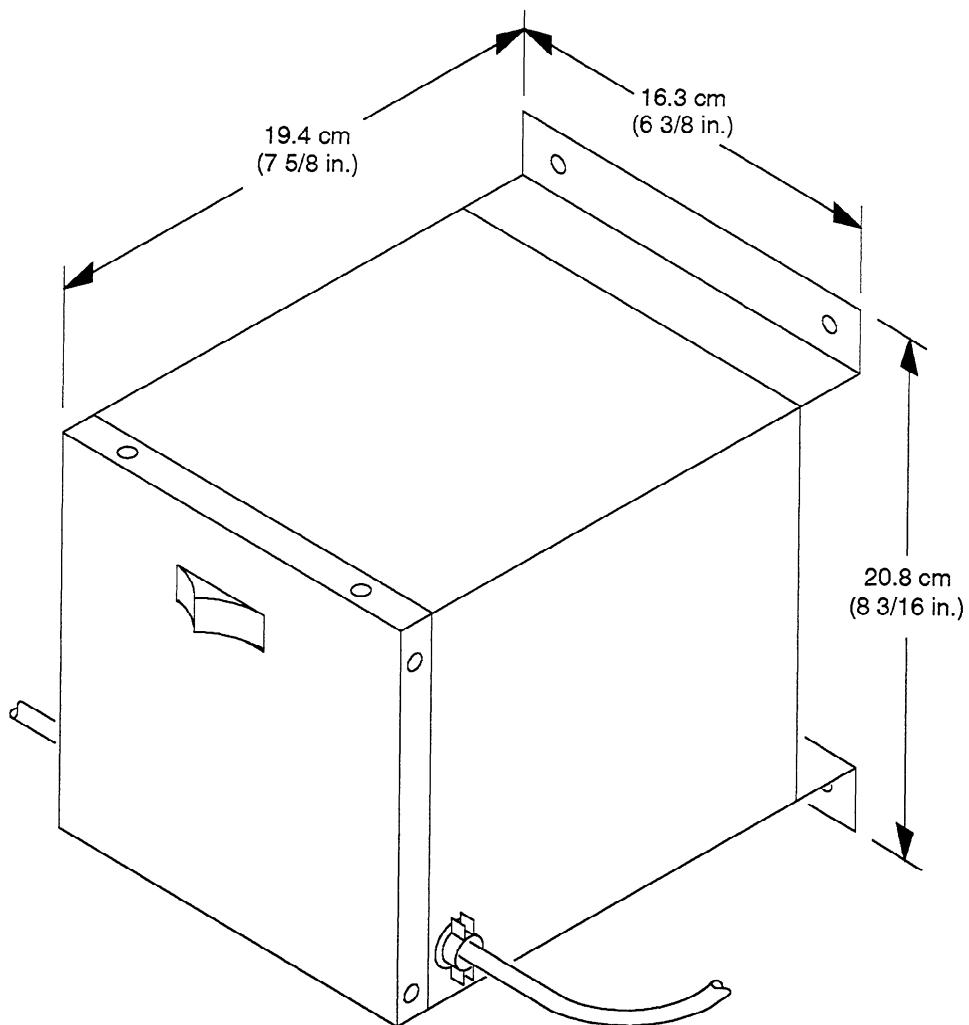
- used for sites with voltage range of 90 V AC to 140 V AC.

230 V AC Transformer Kit, order CAT No. 171 0292

- used for sites with voltage range of 180 V AC to 264 V AC.

Weight: 8.6 g (19 lb)

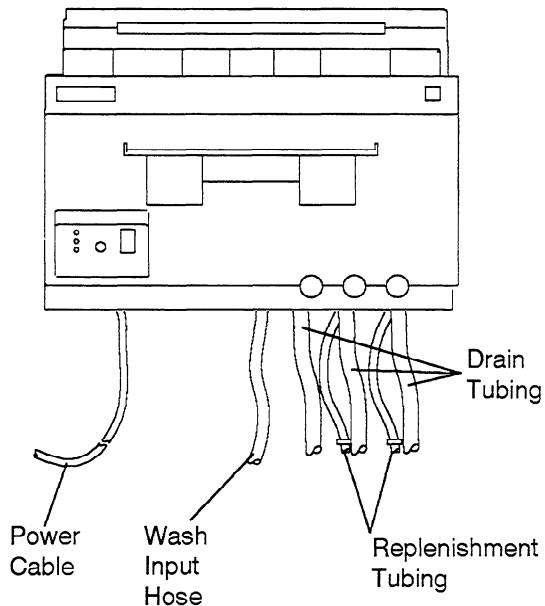
See page 22 to determine whether your site requires a Transformer Kit.



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**Figure 13 Dimensions of the Transformer**

## External Connection Requirements

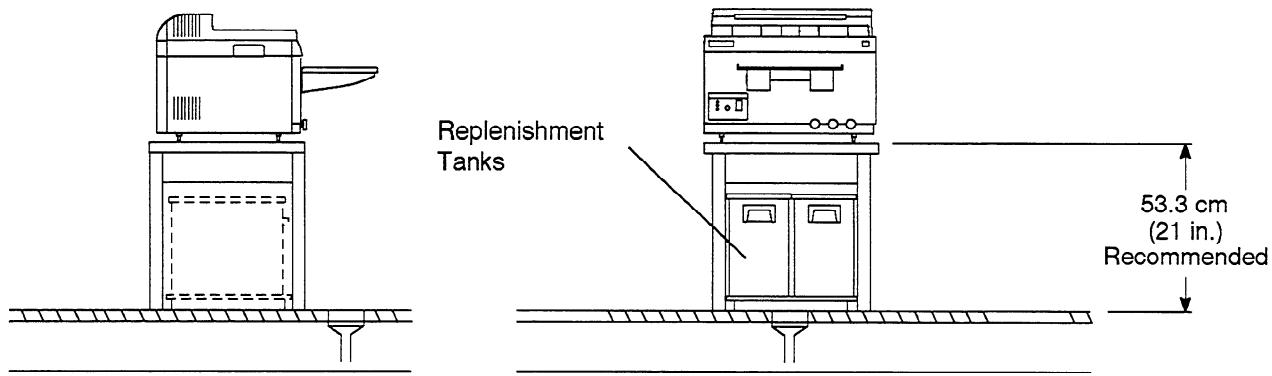


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**Figure 14 Replenishment Tubing, Drain Tubing, Wash Input Hose, and Power Cable**

**Table 4 Parts Required**

Part Name	Description
Replenishment Tubing	Thick Wall 3/8 in. inner diameter; 7.6 m (25 ft) maximum length; Part Number 650656; order per foot as needed. Not provided.
Drain Tubing	3/4 in. inner diameter, 18 ft. provided for M43/M43A only. Order per foot as needed; Part Number 760477.
Wash Input Hose	Check that the wash input hose complies with all local codes. Not provided.
Power Cable	Access hole is 5/8 in. diameter. Power Cable provided with M43A only.



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**Figure 15 Replenishment Supply Tanks**

**Table 5 Dimensions for Replenishment Tanks  
(See Figures 15, 16, and 17)**

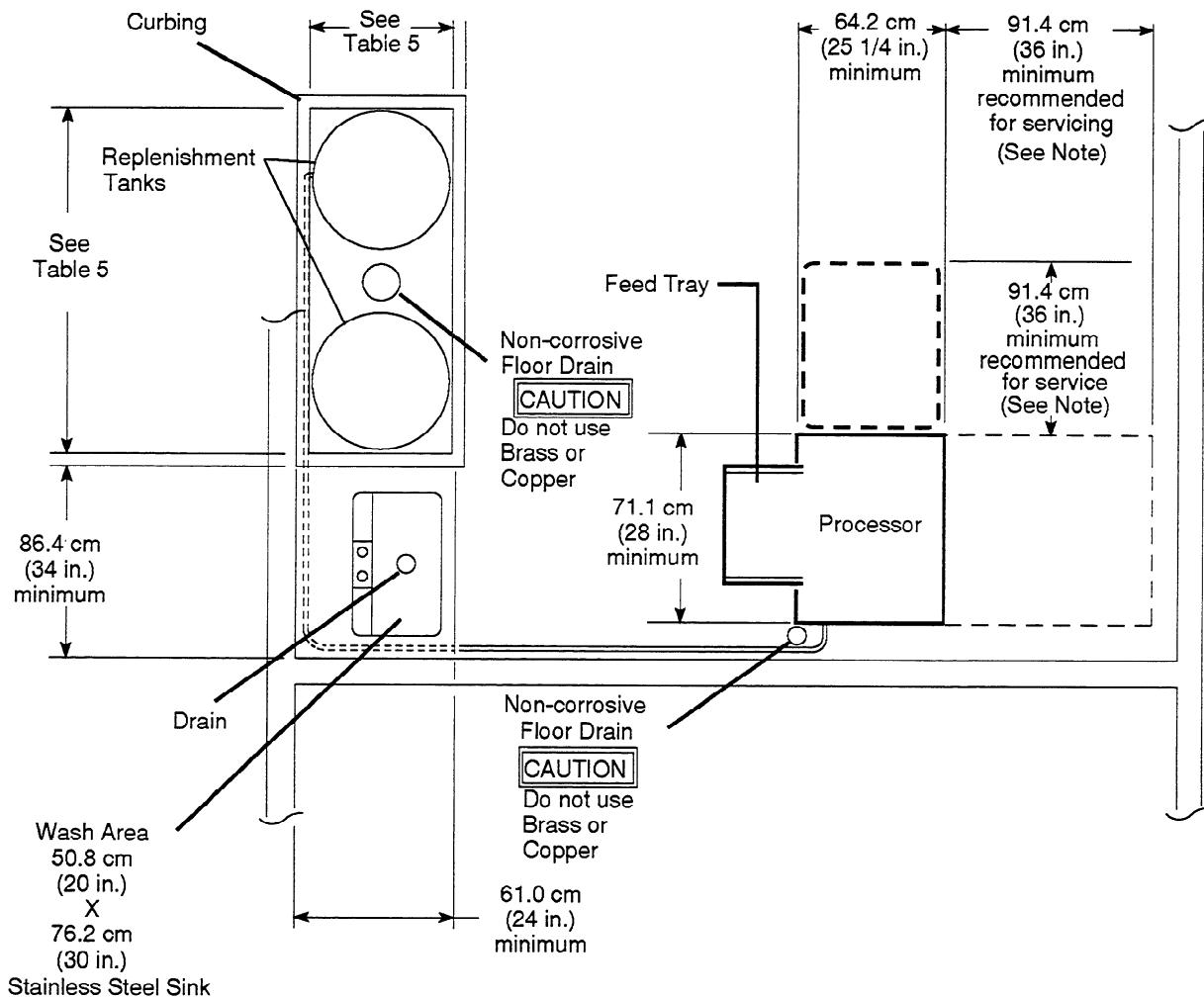
Description	Replenishment Tank Size			
	*8 Gallon Rectangular	14 Gallon Round	30 Gallon Round	55 Gallon Round
Maximum Height of Platform	-----	48.3 cm (19 in.)	35.6 cm (14 in.)	15.2 cm (6 in.)
Tank Diameter	27.9 cm (11 in.) Wide 40.6 cm (16 in.) Deep	43.2 cm (17 in.)	55.9 cm (22 in.)	61.0 cm (24 in.)
Tank Height	38.1 cm (15 in.)	58.4 cm (23 in.)	70.5 cm (28 in.)	90.8 cm (36 in.)
External Replenishment Tank Area	N.A. Tanks stored under table, counter, or stand	61.0 x 127.0 cm (24 x 50 in.)	61.0 x 152.4 cm (24 x 60 in.)	66.0 x 172.7 cm (26 x 68 in.)
Catalog Number	150-0537 Dev./Fixer Tank Set	151-1740 Dev. 151-1765 Fixer	102-2987 Dev. 102-2961 Fixer	151-1823 Dev. 151-1849 Fixer

#### NOTE

\*This tank set fits into the optional stand.

## Room Layouts

### Processor Free Standing



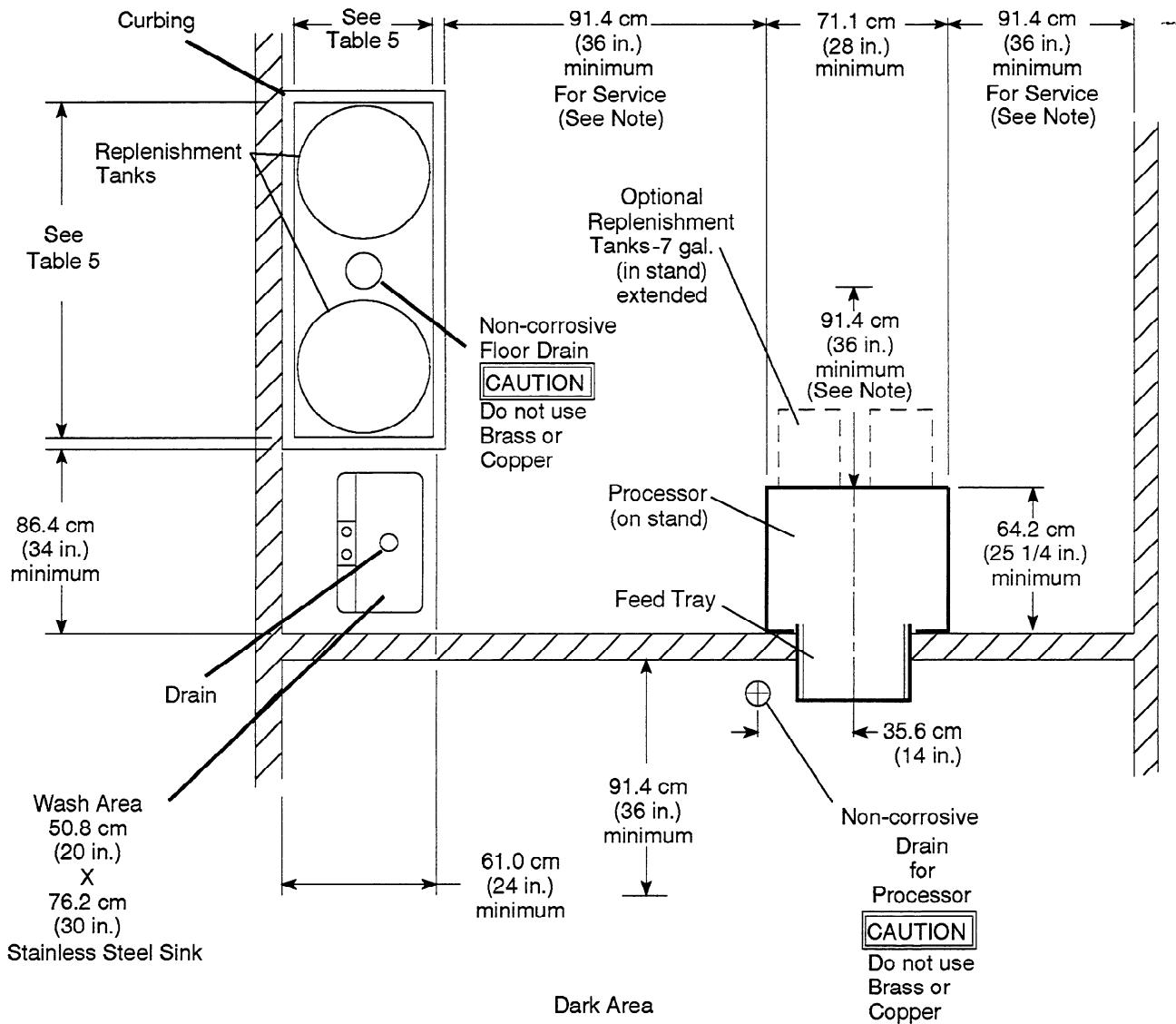
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**Figure 16 Suggested Room Layout for Free Standing Installations Showing Drain Locations**

### NOTE

The minimum clearances recommended for servicing are to prevent moving the processor if service is needed.

**Processor  
Through-the-Wall**

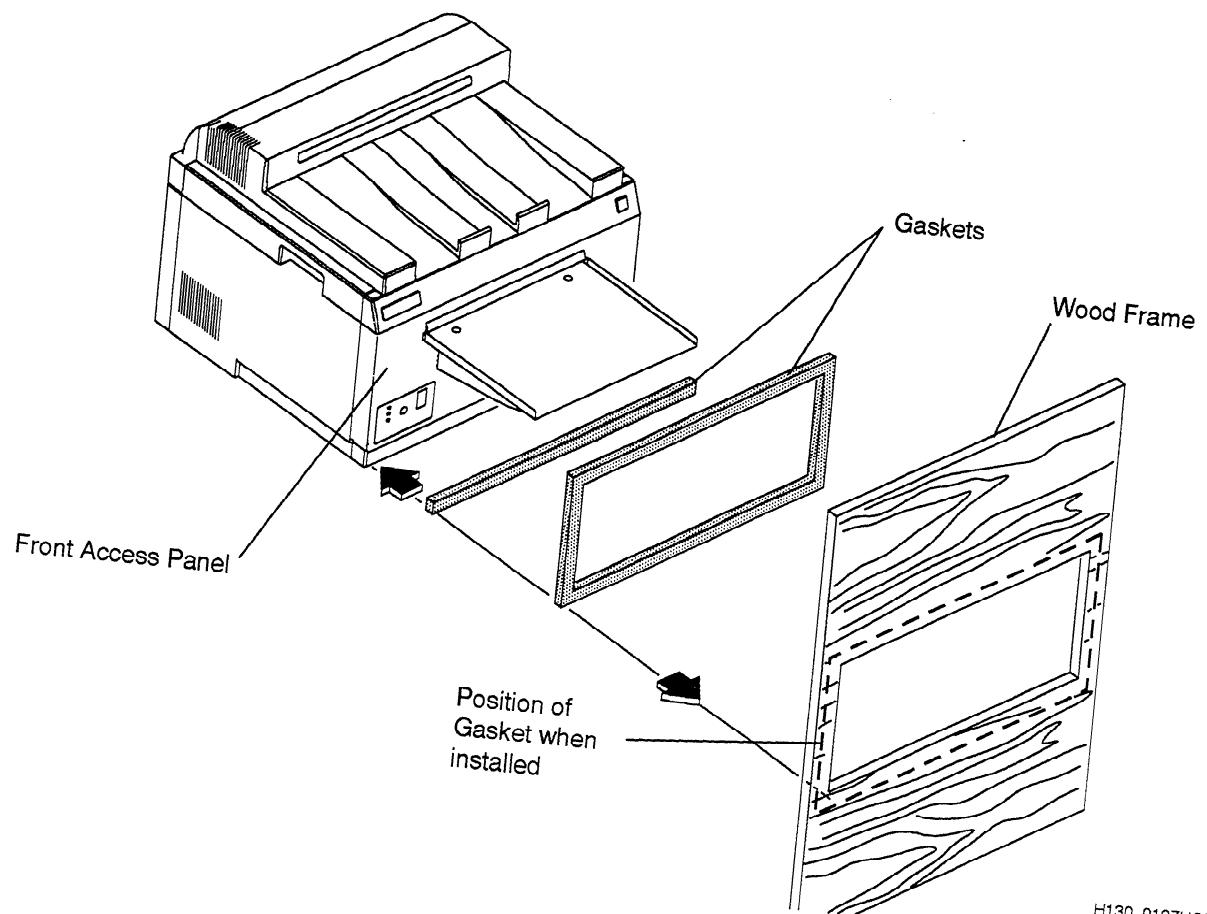


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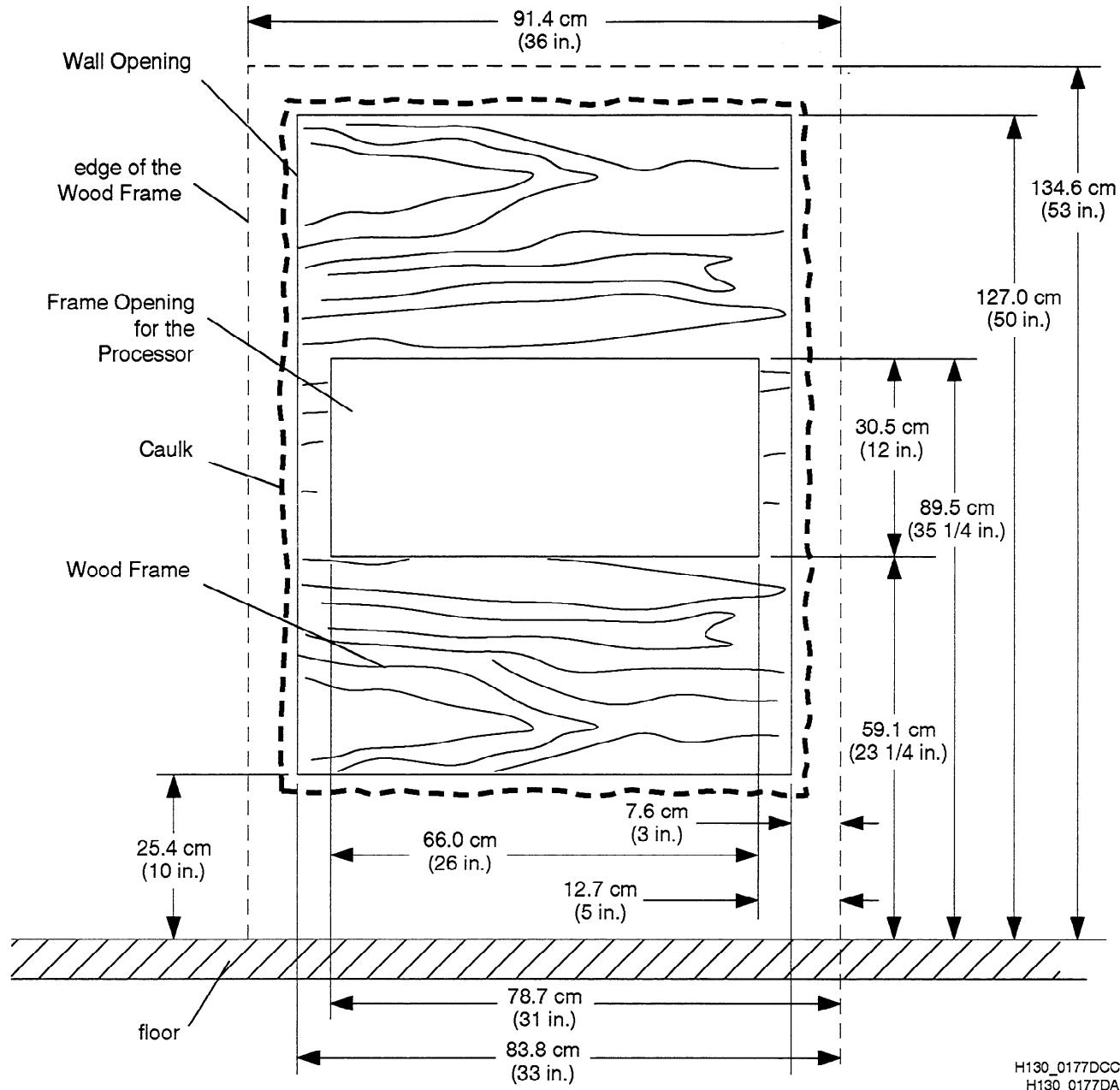
**Figure 17 Suggested Room Layout for Through-the-Wall Installations  
Showing Drain Locations (Drawing not to scale)**

**NOTE**

The minimum clearances recommended for servicing are to prevent moving the processor if service is needed.



**Figure 18 Through-the-Wall Installation**



**Figure 19 Through-the-Wall Dimensions of the Hole in the Wall as viewed from the Darkroom Side**

**NOTE**

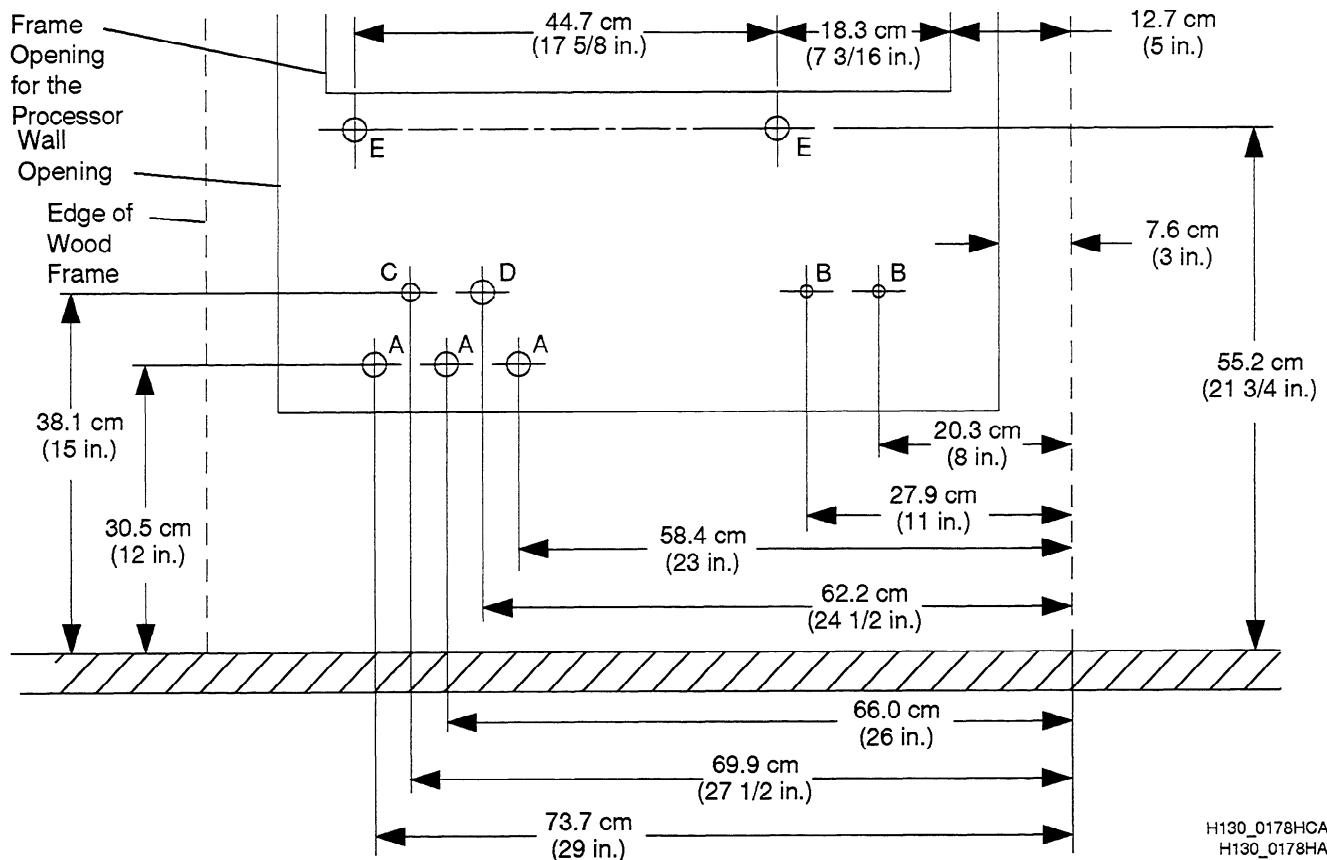
The Wall Opening is sized to provide space:

- above the Feed Tray for the Lighttight Feed Tray
- below any Hoses which must pass through the Wood Frame
- for the plywood to overlap the wall opening by a minimum of 3.8 cm (1½ in.) to ensure a lighttight seal

Hole	Description	Tanks Inside Darkroom Diameter	Quantity	Tanks Outside Darkroom Diameter	Quantity
A	Drain Hoses	1 in.	3	1 1/8 in.	3
B	Replenishment Hoses	1/2 in.	2	—	—
C	Power Cable*	As Needed	1	As Needed	1
D	Water Input Hose	As Needed	1	As Needed	1
E	J-Bolts	1/4 in.	2	1/4 in.	2

\*Routing the Power Cable through the wall is not the recommended installation.

**Drill the holes in the Wood Frame as indicated.**



**Figure 20 Preparing the Holes in the Wood Frame,  
as viewed from the darkroom side**

## Electrical Requirements

### Standard Service Option Charts

Electrical service should be located within sight of the processor, but not located in the darkroom. See the section "Main Power Disconnect" below.

**Table 6 Service Options for the X-Omat M43A and Clinic 1 Processors**

Voltage Volts	Frequency Hz	Service
104 - 127*	50/60**	2 - Wire, Single Phase, Dedicated Circuit, plus Earth Ground, 20 AMP

### IMPORTANT

\*Sites that have voltage supplied to the processor at all times within the range of 104 to 127 V AC, do **not** require the Transformer Kit. For those sites with voltage fluctuations outside this range, the Transformer Kit, CAT. No. 167-4340 is required. Contact your local power authority to determine typical daily voltage ranges.

\*\*The **Clinic 1** Processor is only available for 60 Hz operation.

**Table 7 Service Options for the X-Omat M43 Processor**

Voltage Volts	Frequency Hz	Service
207 - 253**	50/60	2 - Wire, Single Phase, Dedicated Circuit, plus Earth Ground, 10 AMP

### IMPORTANT

\*\*Sites that have voltage supplied to the processor at all times within the range of 207 to 253 V AC, do **not** require the optional Transformer Kit. For those sites with voltage fluctuations outside the range, the Transformer Kit, CAT. No. 171-0292 is required. Contact your local power authority to determine typical daily voltage ranges.

### Main Power Disconnect

- |                          |   |
|--------------------------|---|
| <b>M43A and Clinic 1</b> | <ul style="list-style-type: none"><li>• 20 AMP - 2 POLE for single phase, Thermomagnetic Circuit Breaker, Dedicated Circuit. (Locate a safe distance from water service, but within sight of the processor.)</li><li>• Power Cable without the plug is supplied with M43A model only.</li><li>• Use of a twist lock plug/receptacle is recommended. Ensure that the plug/receptacle used complies with local codes.</li></ul> |
| <b>M43</b>               | <ul style="list-style-type: none"><li>• 10 AMP - 2 POLE for single phase, Thermomagnetic Circuit Breaker. (Locate a safe distance from water service, but within sight of the processor.)</li><li>• Power Cable is not supplied. Ensure that the Cable used complies with local codes.</li></ul>  |

- 
- Agency Compliance** The processor is listed with the following North American agencies:
- Listed to Underwriter's Laboratories Inc., Standard #122, 3<sup>rd</sup> edition, Photographic Equipment.
  - Certified to CSA Standard C22.2 No. 950. Information Technology Equipment Including Electrical Business Equipment.
  - The equipment meets FCC Part 15, Class A limits for industrial equipment.

European Licensing:

- Meets German National Safety Standards. Licensed through TUV AC Rheinland to EN 60950, Information Technology Equipment Including Electrical Business Equipment.
- The processor meets the following EMI limits:

CLASS B EN 55022  
ECC 499/82  
Post Vfg 243/1991

ISO 9002 - equipment is manufactured under the process approved by the British Standards Institute.

## Environmental Requirements

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**Room Ambient Conditions**

**Temperature:** 15° to 30°C (59° to 86°F)  
**Humidity:** 15% to 76%

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**Air and Heat**

**Air Exhaust:**

- Volume: 1,400 L/min (30 ft<sup>3</sup>/min)
- Temperature: 52°C (140°F) maximum

**Maximum Heat Load to Room:**  
**(No standby, Dryer maximum)**

**Room Air Changes:** It is **highly** recommended that the darkroom, with the door closed, have ten (10) air changes per hour, 24 hours a day, 7 days a week.

**CAUTION**

The building's exhaust system must force air to the outside of the building. No air should be reused.

**NOTE**

For sites that do not meet these requirements, see the section for optional accessories on page 6.

## Water and Drain Requirements

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### Processor Water Supply

- Temperature:** 4° to 29°C (40° to 85°F) or 8° below the Developer set-point temperature.
- Pressure:** 138 to 448 kPa (20 to 65 psi)
- Flow Volume:** Controlled within the processor to 1 L/min ±15% (32 fl oz/min) maximum
- Filtration:** A 50-micron filter is recommended.

#### IMPORTANT

- All water service must comply with local codes.
- If the upper limit of the water supply temperature is exceeded, a water chiller is required.
- The processor is supplied with a 50 mm (2 in.) air gap for anti-siphoning protection.
- Tempered water is recommended for cleaning the processor and for mixing chemicals manually.

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### Drain

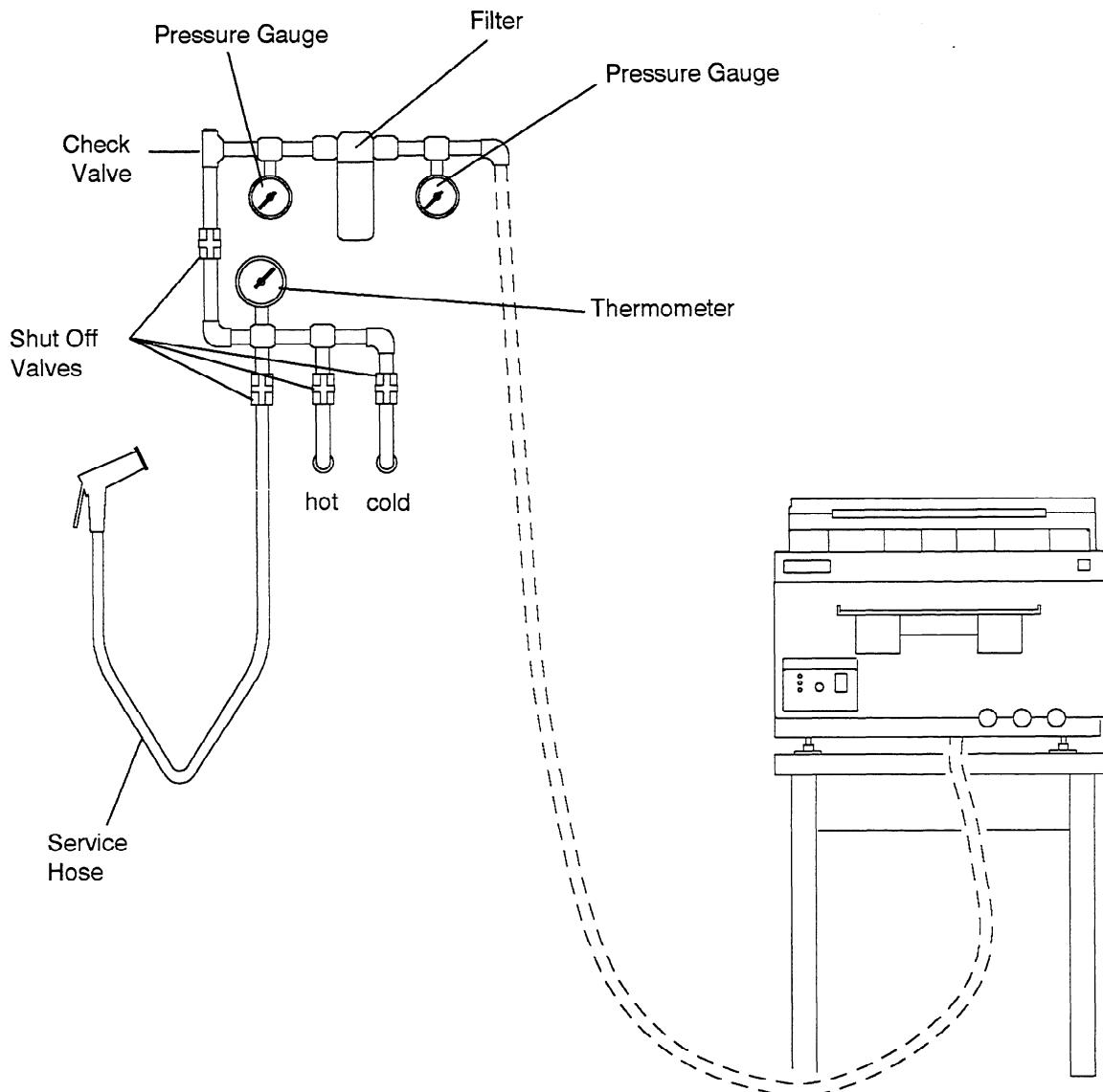
- Capacity:**
- 10 L/min (1.3 gal/min) if all 3 solutions are drained together
  - 3 L/min (.4 gal/min) if each solution is drained separately
  - 1.5 L/min (.2 gal/min) during normal operation
- Connection:** 7.6 cm (3.0 in.) diameter, corrosive resistant recommended

#### WARNING

- Drains must be made of chemically resistant, non-corrosive material. Use CPVC, PVC or equivalent. Do not use brass or copper for the Drain lines.
- The Drain must have a minimum diameter of 7.6 cm (3 in.) and be free of obstruction.
- Drain service must comply with local codes.

#### IMPORTANT

- Do not make a solid connection between the Drain Hoses and the fixed Drain.
- The Drain Tubing **must** slope downward to the floor Drain to ensure proper draining.



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**Figure 21 Suggested Processor Water Supply**

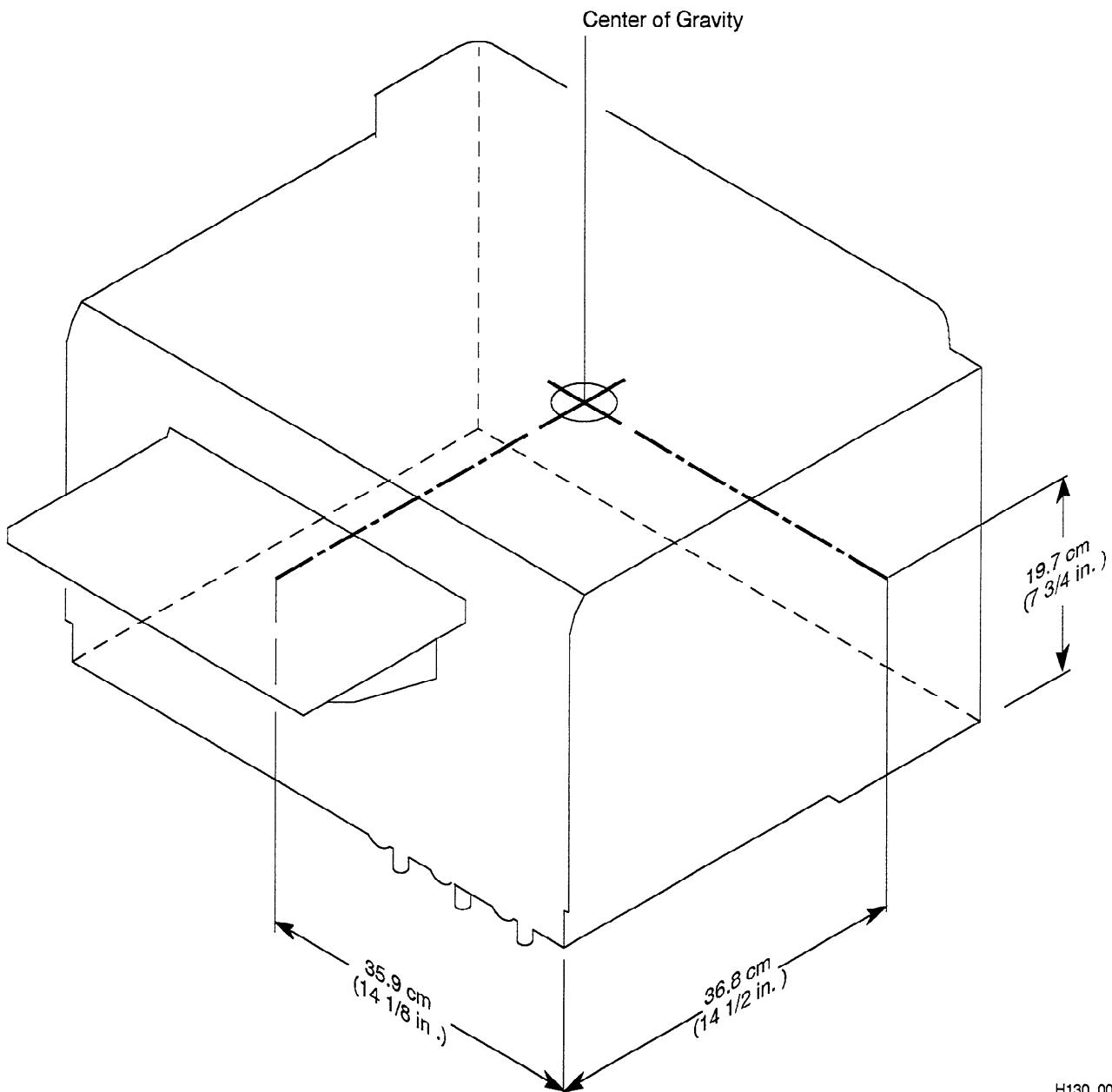
**NOTE**

All Check Valves may not be necessary, check local codes. The Service Hose is recommended for cleaning.

Water Shutoff Valve, 13 mm (1/2 in.) NPT; Part Number 459981. Not provided.

## Center of Gravity

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**Figure 22 Center of Gravity of Empty Processor**

## **Warranty**

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Kodak warrants the *Kodak X-Omat M43* and *M43A Processors* and the *Kodak X-Omat Clinic 1 Processor* to function correctly for one year from the date of initial installation, when installed within one year from date of shipment.

### **Warranty Repair Coverage**

If this equipment does not function correctly during the warranty period, the authorized dealer (for *Kodak X-Omat M43* and *M43A Processors* and *Kodak X-Omat Clinic 1 Processor*) who sold the equipment will provide or arrange for repair of the equipment during the dealer's normal working hours. Such repair service will include any adjustments and/or replacement of parts required to maintain your equipment in good working order.

### **How To Obtain Service**

Should equipment require service, refer to the sales contract for details on whom to call for service, or contact the authorized dealer (for *Kodak X-Omat M43* and *M43A Processors* and for the *Kodak X-Omat Clinic 1 Processor*) who sold the equipment.

### **Limitations**

Warranty service is limited to the contiguous United States, the island of Oahu in Hawaii, and certain areas of Alaska.

This warranty does **not** cover—

- circumstances beyond the control of Kodak,
- misuse,
- abuse,
- attachments,
- accessories,
- alterations not marketed by Kodak (including service or parts to correct problems resulting from the use of such attachments, accessories, or alterations),
- failure to follow the operating instructions as recommended by Kodak,
- supply items.

**Kodak makes no other warranties, expressed or implied, for this equipment.**

Repair without charge is the only obligation of both Kodak and the dealer under this warranty. **Kodak will not be responsible for any consequential or incidental damages resulting from the sale, use, or incorrectly functioning of this equipment, even if loss or damage is caused by the negligence or other fault of Kodak.**

Such damages for which Kodak **will not** be responsible, include, but are not limited to, loss of revenue or profit, downtime costs, loss of use of the equipment, cost of any substitute equipment, facilities or services or claims of your customers for such damages.

This limitation of liability will not apply to claims for injury to persons or damage to property caused by the sole negligence or fault of Kodak or by persons under its direction or control.

## Publication Change Notice Table

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Print Date	Pub. No.	ECO No.	Affected Pages	File Name	Notes
January 1994	981087	1st Printing	Not Applicable	3229ss_c.txt	
May 1994	981087	2622-098	Front Cover, 3, 20 - Back Cover	3229ss_c_098.txt	Corrected Dimensions in Through-the-Wall Illustration, Added Illustration on page 21.
August 1994	981087	2622-111	All Pages	3229ss_c_111.txt	Major Revision and Update to bring Manual to Final Release Status

3229ss\_c\_111.txt

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**Health Sciences Division**



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